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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,036	02/01/2005	Roberto Avallone	Q90912	2244

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EXAMINER

HUGHES, DEANDRA M

ART UNIT PAPER NUMBER

3663

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/500,036	<b>Applicant(s)</b> AVALLONE ET AL.	
	<b>Examiner</b> Deandra M. Hughes	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 and 25-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 9 and 13-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/23/04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I, Species E in the reply filed on 9/21/06 is acknowledged. The traversal is on the ground(s) that the independent claims share the technical features recited in both apparatus and method forms: (1) a 1<sup>st</sup> pump source which sends a pump radiation in a 1<sup>st</sup> direction to cause Raman amplification of a 1<sup>st</sup> optical signal on a link; (2) a 1<sup>st</sup> photodetector for converting a portion of the 1<sup>st</sup> optical signal into an electrical signal, and (3) a 1<sup>st</sup> supervisory unit adapted for amplifying the electrical signal, for extracting a 1<sup>st</sup> supervisory signal from the electrical signal and causing the extracted amplified 1<sup>st</sup> supervisory signal to be superimposed on the 1<sup>st</sup> optical signal. Applicant argues that the criteria for non-unity of invention are not what is different about the claims but what is the same (paragraphs 3-5, in particular see paragraph 5, lines 3-4).

This is not found persuasive because although the claims share technical features, they do not share the same special technical feature. PCT Rule 13.1 states,

where a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. (emphasis mine)

Here, the Examiner has identified the special technical feature of the *type of modulator* (see Restriction requirement dated 7/21/06) as the technical feature that defines a contribution which each of the claimed inventions, considered as a whole,

makes over the prior art. Consequently, each of the claimed inventions do not share the same special technical feature. The requirement is still deemed proper and is therefore made **FINAL**.

2. Applicant elected claims 1-4, 9-22, and 24 as readable on Species e of Group I. Claim 24 depends upon claim 23 and claim 9 depends upon claim 8, respectively. Consequently, claims 8 and 23 can not be withdrawn and claims 1-4 and 8-24 are examined herewith.

***Information Disclosure Statement***

3. The information disclosure statement (IDS) filed on 6/23/04 has been considered by the examiner and is found to be cumulative to the art of record.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Deguchi (US 6,452,721 published Sep. 17, 2000).

With regard to claim 1, Deguchi discloses an optical transmission system (fig. 3, col. 5, line 65) comprising:

- at least a first and a second terminal station, optically connected with each other by an optical link (transmission systems inherently have transmitters

and receivers, which the Examiner considers to be the 1<sup>st</sup> and 2<sup>nd</sup> terminal stations);

- said first or said second terminal station being *adapted to send on said optical link at least a first optical signal having a first direction (col. 6, lines 21-22);*
- and at least a 1st pump source (#38) disposed along said optical link; said pump source being *adapted to send on said optical link a pump radiation in said 1<sup>st</sup> direction (pump #38 is a co-propagating pump) so as to cause Raman amplification of said first optical signal*
- at least one device disposed along said optical link (e.g. #12);
- at least a 1<sup>st</sup> photodetector *adapted for converting a portion of said 1<sup>st</sup> optical signal in an electrical signal (#14);*
- a 1<sup>st</sup> supervisory unit (col. 6, line 32 an upstream repeater) *adapted for amplifying said electrical signal, for extracting a 1<sup>st</sup> supervisory signal from said electrical signal and for feeding said extracted amplified 1<sup>st</sup> supervisory signal to at least a 1<sup>st</sup> modulator connected to said optical link or to a driving circuit of said pump source, so as to superimpose said extracted amplified 1<sup>st</sup> supervisory signal on said optical signal (col. 6, lines 18-38).*

The Examiner considers the claim language identified in italics above to be a functional limitation. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus **must be distinguished from the prior art**

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**in terms of structure rather than function alone.** Since the structural limitations have been met by the prior art, the Examiner has reason to believe that the function limitation can be performed by the prior art structure. See MPEP 2114.

In order to give functional limitations patentable weight, the Examiner suggests languages such as “configured for” or “configured to”.

With regard to claim 2, the supervisory signal comprises at least information signal (operating the switch; #24; col. 6, line 41) an operating state of the device (col. 6, line 34).

With regard to claim 3, the device is a repeater (col. 5, line 65) with at least one pump source (#12).

With regard to claim 4, the supervisory unit is associated with a pump source (col. 6, line 35).

With regard to claim 10, the 1<sup>st</sup> fiber is #8 and the 2<sup>nd</sup> fiber is the fiber between #12 and #10.

With regard to claim 11, the 2<sup>nd</sup> pump source #12 sends a signal in a 2<sup>nd</sup> direction (counter-propagating).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deguchi (US 6,452,721 published Sep. 17, 2002) in view of Sekiya (US 6,839,162 filed Sep. 10, 2001).

With regard to claim 8, Deguchi does not specifically disclose that the modulator is a variable optical attenuator. However, Sekiya teaches supervisory signal modulation via a variable optical attenuator (fig. 6, #109; col. 28, lines 54-28). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a variable optical attenuator for signal modulation in the device of Deguchi for the advantage of obtaining a predetermined output power, as is specifically taught by Sekiya (col. 29, line 14).

With regard to claim 12, Deguchi does not specifically disclose a second photodetector. However, Sekiya teaches a second photodetector (fig. 6, #124). It would have been obvious to one of ordinary skill in the art (e.g. an optical engineer) at the time the invention was made to use a second photodetector for the advantage of automatic gain control (AGC) as is specifically taught by Sekiya (col. 16, lines 60-65).

***Allowable Subject Matter***

8. Claims 9 and 13-24 are objected to as being dependent upon a rejected base claim. If claims 9 and 13-24 are amended with "configured for" or "configured to" language to give the functional limitations patentable weight and if claims 9 and 13-24 are written in independent form including all of the limitations of the base claim and any intervening claims, then claims 9 and 13-24 would be in condition for allowance.

9. The following is a statement of reasons for the indication of allowable subject matter.

With regard to claim 9, the prior art does not teach or make obvious a magneto-optical variable attenuator in conjunction with the other limitations of the claim.

With regard to claims 13-24, the prior art does not teach or make obvious a second modulator, said second modulator being associated to a first supervisory unit. in conjunction with the other limitations of the claim.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 16 of copending Application No. 10/500,019. Although the conflicting claims are not identical, they are not patentably



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distinct from each other because the photodetector of claim 16 in the conflicting application 10/500,019 is the at least one device of claim 1 in the instant application. Consequently, claim 1 of the instant application is merely broader than claim 16 of the conflicting application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Avallone, Kandpal, Nakamoto, Roberts, Shan, and Simard disclose optical transmission system control via supervisory signals.

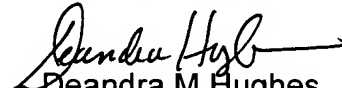
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deandra M. Hughes whose telephone number is 571-272-6982. The examiner can normally be reached on M-F, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Deandra M Hughes  
Primary Examiner  
Art Unit 3663